OFFICE OF CONGRESSMAN EARL BLUMENAUER
APPROPRIATIONS REQUEST FORM
FISCAL YEAR 2011

Instructions

1. Please complete the entire form. **All fields are required.**
2. Please do not **bold**, underline, or *italicize* responses.
3. Request forms must be submitted as a Word document.
4. All completed request forms and any supplemental materials must be submitted via email to: **Appropriations.Blumenauer@mail.house.gov**
5. Please do not send more than one request per email.
6. All completed request forms must be submitted no later than **Friday, February 26, 2010**.
7. If you do not receive an email confirming receipt of your request within 48 hours of submission, please contact Stephanie Cappa in Congressman Blumenauer's Washington, D.C. office at 202-225-4811.

PLEASE NOTE: All appropriations requests submitted to Congressman Blumenauer's office will be made public on his website, as required by the House Committee on Appropriations.

Project Details

1. **Project title:** ONAMI Mobile Military Energy Initiative (MME)

2. **Organization name and address** (the recipient of the funds)**:**

Oregon State University
Corvallis, OR

University of Oregon
Eugene, OR

Portland State University
Portland, OR

Oregon Nanosciences and Microtechnologies Inst
Corvallis, OR

Oregon Health and Science University
Portland, OR

3. **Contact information**
   a. **Project's primary contact:** Brian K. Paul
   b. **Daytime telephone number/ mobile phone number:** 541-737-7320
   c. **Email Address:** Brian.Paul@oregonstate.edu
   d. **Project location** (if different than organization's address):

Washington Contact:
Jennifer Schafer
Cascade Associates
202-554-5828/202-297-6037
jasca@cascadeassociates.net

4. Please describe the requesting organization's main activities.

Public University
Research, Development and Deployment activities

ONAMI is the first Oregon Signature Research Center. A cooperative venture among government and world-class nanoscience and microtechnology R&D institutions and industry in the Northwest, ONAMI was created to cultivate research and commercialization to advance the leading economic sector in Oregon, and expand the benefits of technology innovation to traditional and natural resource industries.

ONAMI fosters a deep reach into fundamental science for the next source of innovation and high-wage employment opportunities. By putting nanotechnology to work in microsystems, ONAMI members are taking these advances from the lab through to commercialization

5. Is this organization a public, private non-profit, or private for-profit entity?

Public

6. From what federal agency and account are you requesting funds (Please be specific –e.g., Department of Housing and Urban Development, Economic Development Initiatives account)?

Department of Defense
Department of the Army
RDT&E
Line Name: Combat Vehicle and Automotive Technology
PE # 0601103A

7. Briefly describe the activity or project for which funding is requested (no more than 500 words)**.**

The US military is highly motivated to develop sustainable energy technologies that provide strategic effectiveness and energy security (i.e. energy supply, demand, and assured distribution). This funding request is to develop a diverse range of micro and nanotechnology-enabled mobile military energy technologies (MMET) for military vehicles that contribute substantially to this goal. The resulting research will strengthen collaborations within the Oregon University System (OUS) via the Oregon Nanoscience and Microtechnologies Institute (ONAMI) and between OUS and the Pacific Northwest National Laboratory (PNNL) via the ONAMI Microproducts Breakthrough Institute (MBI) in Corvallis, OR. These collaborations will advance the micro and nanotechnology necessary to support energy development on mobile military platforms.

The ONAMI team will work with the Army Tank and Automotive Research, Development and Engineering Center (TARDEC) to provide efficient and sustainable energy technologies for military transportation applications to reduce operational and installation energy use while maintaining or enhancing mission capability. Examples of MMET that could be developed for military vehicles include: 1) advanced batteries for electric vehicles, 2) waste energy recovery and utilization in mobile systems, 3) microclimate control systems, 4) co-functional power and cooling, 5) battery cooling with temperature control, 6) portable solar PV and wind

systems, 7) vehicle cooling with distributed cooling architectures and systems, and 8) micro and nano-scale enhanced thermal management systems for advanced electronics, high-power radars, and directed-energy lasers.

This initiative will inherently develop and integrate sustainable energy technology within military energy supply chains by leveraging ONAMI expertise and infrastructure. Nanomaterial synthesis, nanolaminates and nanotextured surfaces (areas of international leadership demonstrated by ONAMI) will be used to enhance thermoelectric effects, photovoltaics, transparent conductivity, anti-reflection, chemical kinetics, heat transfer, etc. Microchannel process technology, an area of international leadership provided through the ONAMI MBI, will be used to overcome heat and mass transfer limitations yielding smaller, more compact energy systems with high surface area densities for deploying surface phenomena. This initiative will leverage the extensive industrial partnerships and facilities available through ONAMI.

While these nano and microtechnologies will be focused on military energy needs, it is obvious that as clean energy technologies, they will have wide commercial application leading to new commercial endeavors and whole new industries. Examples include compact power supplies for portable electronics, thermal management of advanced high-power electronics, portable fuel cells and hydrogen production, automotive cooling systems that operate using exhaust heat, and a new generation of distributed, compact heating and cooling systems for residences. Selection of novel concepts for further research will be conducted in conjunction with military experts within TARDEC as well as ONAMI representatives.

8. What is the purpose of the project? Why is it a valuable use of taxpayer funds? How will the project support efforts to improve the economy and create jobs in Oregon?

The purpose of the project is to seed high-risk research projects with DoD clients that will lead to research growth in Oregon (follow-on projects) and commercialized technology (both by industry incumbents and ONAMI-supported startup companies).

ONAMI's areas of innovation are right in the "sweet spot" (energy systems, green nanotechnology, nano-medicine breakthroughs) or in essential support (measurement) science of areas of social and economic importance – already identified in stimulus legislation as priorities.

Research funding has both direct stimulating effect (most funds go to graduate student, technician and researcher salaries) and investment effect (develop IP that is more likely to be commercialized in Oregon since the research was done here

9. Has this project received federal appropriations funding in past fiscal years?

Its precursor, Tactical Energy Systems, received funding.

9a. If yes, please provide the fiscal year, Department, Account, and funding amount of any previous funding.

Tactical Energy Systems was funded in Army RDT&E, Electronics and Electronic Devices: $2.5M in FY10, $2.4M in FY09, $2.5M in FY08, $1.0M in FY07, $2.5M in FY06 and $2.5M in FY05

Funding Details

10. Amount requested for this project:

$5,000,000

11. Breakdown/budget of the amount you are requesting for this project (e.g., salary $40,000; computer $3,000):

Funds are primarily for Research and Development (salaries and stipends, instrumentation and materials). Approximate breakdown; 40% for equipment ($2,000,000), 50% for research including faculty and graduate student salary/grants ($2,500,000), and 10% for other ONAMI activities including center development, industry and community outreach, clerical and support services, etc. ($500,000)

12. What is the total cost of the project?

$20,000,000

13. Is this project scalable (i.e., If partial funding is awarded, will the organization still be able to use the funds in FY 2011?)?

Yes

14. What other funding sources (local, regional, state) are contributing to this project or activity? (Please be specific about funding sources and funding amounts)

ONAMI has received over $81 million in matching funds from state and private sources since FY04, and ONAMI member researchers have won over $82 million in competitive federal and private awards during the same period. During FY09 alone, ONAMI researchers booked a total of $35.4 M of which only $7M was in congressionally mandated monies, demonstrating growing success and momentum for this investment.

15. Please list public or private organizations that have supported/endorsed this project.

NWUAV Propulsion Systems
Battelle Memorial Institute/Pacific Northwest National Laboratory
Hewlett-Packard
FEI Company NanoTech
State of Oregon (ONAMI receives funds as a Signature Research Center)

Please return this form no later than Friday, February 26, 2010 via email to:

Appropriations.Blumenauer@mail.house.gov

Washington, D.C. Appropriations Contact for Rep. Earl Blumenauer: Stephanie Cappa, 202-225-4811, Stephanie.Cappa@mail.house.gov

Oregon Appropriations Contact for Rep. Earl Blumenauer: Sarah Masterson, 503-231-2300, Sarah.Masterson@mail.house.gov